Antimicrobial Resistance in *Salmonella* Serotype Typhimurium, R-Type ACSSuT, is Associated with Bacteremia: NARMS 1996-2000

Mølbak K, Varma J, Rossiter S, Lay J, Joyce K, Stamey K, Angulo F, and the NARMS Working Group.

Background: Antimicrobial resistance in *Salmonella* increased during the 1990s, particularly amongst the most common serotype, *S*. Typhimurium. Multidrug-resistant *S*. Typhimurium phage type DT104, which usually is resistant to five drugs: ampicillin, chloramphenicol, streptomycin, sulfonamides, and tetracycline (R-type ACSSuT) is the most prevalent strain among *S*. Typhimurium.

Methods: After serotyping, public health laboratories at 17 sites forward every 10th non-typhoidal *Salmonella* isolate to the National Antimicrobial Resistance Monitoring System (NARMS) for Enteric Bacteria. NARMS performs susceptibility testing for 14 antimicrobials, using broth microdilution according to NCCLS standards.

Results: In 1996-2000, 1,513 (23%) of 6,670 isolates were serotype Typhimurium; of which 95% were from stool and 5% from blood. The median age of patients with *S*. Typhimurium from stool was 9 years (interquartile range 3-33 years) and from blood 42 years (interquartile range 32-63 years). Of the 1,513 isolates, 818 (54%) were resistant to >=1 agent; 6% (53) of resistant isolates were from blood compared with 3% (21) of pan-susceptible isolates (OR 2.2; 95% CI 1.3 to 3.7). 462 (31%) isolates were R-type ACSSuT; 7% (33) were from blood compared with 3% of pan-susceptible (OR 2.5; 95% CI 1.5 to 4.5). Adjusting for age in a multivariable logistic regression model, R-type ACSSuT was 2.5 times (95% CI 1.3 to 4.6) more likely to be from blood, and resistant isolates other than R-type ACSSuT isolates were 1.7 times (95% CI 0.9 to 3.5) more likely to be from blood than pan-susceptible strains.

Conclusions: Antimicrobial resistance in *S*. Typhimurium, particularly R-type ACSSuT, is associated with an increased risk of bacteremia. Further studies are needed to confirm this increased invasiveness and determine the potential biological mechanisms.

Suggested citation:

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